AUTHOR INDEX

Cocchi, M. 107

Depezay, J. C. 229
Dumas, J. 229

Gravier-Pelletier, C. 229

Hazel, J. R. 167

Kent, C. 87
Kiss, Z. 141

Le Merrer, Y. 229

McIntyre, T. M. 45
Mishra, P. 65
Murphy, D. J. 299

Natarajan, V. 1
Noble, R. C. 107

Prasad, R. 65
Prescott, S. M. 45

Schmid, H. H. O. 1
Schmid, P. C. 1

Takagi, T. 277

Whatley, R. E. 45
Williams, E. E. 167

Zimmerman, G. A. 45

AUTHOR INDEX

Cocchi, M. 107

Depezay, J. C. 229
Dumas, J. 229

Gravier-Pelletier, C. 229

Hazel, J. R. 167

Kent, C. 87
Kiss, Z. 141

Le Merrer, Y. 229

McIntyre, T. M. 45
Mishra, P. 65
Murphy, D. J. 299

Natarajan, V. 1
Noble, R. C. 107

Prasad, R. 65
Prescott, S. M. 45

Schmid, H. H. O. 1
Schmid, P. C. 1

Takagi, T. 277

Whatley, R. E. 45
Williams, E. E. 167

Zimmerman, G. A. 45

SUBJECT INDEX

Acyclic hydroxylated fatty acids
  double bond creation 232
  establishment of chiral centres 247
  retrosynthesis 256
  synthesis 231
N-Acylated glycerolipids
  biochemical effects 32, 34
  chemical synthesis 4
  degradation and analysis 11
  extraction and separation 10
  fish 18
  mammals 19
  microorganisms 14
  pharmacological effects 36
  physical properties 5
  plants 17
  structure and terminology 2
Acyl chain restructuring, membrane adaption to temperature 183
Acyl-CoA, metabolism and environmental stress 212
  N-Acylethanolamines 3
  biochemical effects 34
  biosynthesis 32
  chemical synthesis 4
  pharmacological effects 36
  rodent tissues 20
N-Acylethanolamine amidohydrolase, in mammalian tissue 31
N-Acylethanolamine lysophospholipids
  chemical synthesis 4
  structure 3
N-Acylethanolamine phospholipids
  biological properties 32
  biosynthesis 25
  catabolism 30
  in fish 18
  in mammals 19
  in microorganisms 14
  myocardial infarction 22
  structure 3
N-Acyl phosphatidylethanolamine 3
  chemical synthesis 4
  degradation and analysis 11
  extraction and separation 11
  infrared spectra 5
  in microorganisms 14
  NMR spectrometry 6
  phase behaviour 8
  in plants 17
N-Acylserine 3, 4
Acyltransferases
  fungi 307
  temperature effects 215
Adenosine-3', 5'-monophosphate, regulation and phosphatidylcholine biosynthesis 96
Adenosine-3', 5'-monophosphate-dependent protein kinase, role in lipid metabolism 58
Na^+, K^+-Adenosine triphosphatase
  in membranes, pressure effects 198, 200
  in membranes, temperature effects 175, 179
Adipose tissue
  chick embryo 129
  lipid bodies 303
Alcohol, effect on *Candida albicans* 81
Alcohols, chromatographic separation of enantiomers 294
n-Alkanes, *Candida albicans* growth on 76
Alkylglycerols, chromatographic separation of enantiomers 292
Alkyne, fatty acid synthesis 233
Allylic alcohol, epoxidation 251
Anaesthetics, membrane effects 197
Anhydrobiosis 202
Apolipoproteins 320
Aqueous garlic extract 80
Arachidonic acid
  calcium effects on metabolism 54
  chick embryo 125
  metabolism by endothelial cells 46
  PAF production in endothelial cells 52
  phorbol ester effects on metabolism 154
  yolk 117
Arachidonic acid metabolites
  biogensis 231
  synthesis 231
Arthritis, *N*-palmitoylethanolamine activity 37
Autocrines, endothelial cells 53, 54

Bacteria, *N*-acylated glycerophospholipids in 14
Bending energy 183
Bile, chick embryo 128, 131
Brain
  N-acylated glycerophospholipids in 20, 24, 29
  chick embryo 128

Calcium
  N-acylethanolamines and homeostasis 34
  role in endothelial cell signal transduction 54
  role in lipid metabolism 56
Cancer cells, *N*-acylglycerophospholipids in 24
Candida albicans
  cellular distribution of lipids 72
  environmental stresses and lipid composition 75
  lipid analysis 69
  lipid profile 65
  lipids in structure and function 81
CDP-diacylglycerol transferase, temperature effects 215
Cell growth and differentiation, phorbol ester effects 142
Cerebroside, *Candida albicans* 68
Cerulein, effect on *Candida albicans* 81
Chick embryo
  bile lipids and liver 131
  cholesterol metabolism 129
  development 112, 132
  lipid accumulation 125
  lipid metabolism of emerged chick 135
  lipid transfer from yolk 119

plasma lipids 125
polyunsaturated fatty acid metabolism 131
yolk lipid composition 112
yolk lipid formation 108
Chiracel OB and OC 281, 294
Chiral centres, establishment 247
Chiral columns 280
Chiral lipid derivatives, chromatographic resolution 277–298
Chiral pool, fatty acid synthesis 254
Chiral reagents 249, 279
Cholesterol
effect on membrane response to pressure 197
metabolic adaption 217
metabolism in chick embryo 129, 130, 134
modulation and thermal compensation 190
yolk lipid 120
Cholesteryl ester, chick embryo 125, 126, 128, 130
Choline, phosphatidylcholine biosynthesis 88
Choline kinase
phosphatidylcholine biosynthesis 89
purification 91
Cholinephosphotransferase
phosphatidylcholine biosynthesis 100
molecular cloning 101
Chylomicrons 309
mobilisation 314
Cold adaption 179
acyl chain restructuring 184
desaturase activity 212
membrane adaptions in freezing tolerance 191
phospholipid molecular species restructuring 186
Cyclopropene fatty acids, chick embryo survival 133
Cytidylyltransferase
phorbol ester activation of 146
phosphatidylcholine biosynthesis 89, 93, 146
purification 98
translocation 97

Deacylation/reacylation cycle 216
Dehydration, membrane structure and function 203
Desaturase, thermal adaption 212
Development
chick embryo 112, 132
seeds, oil bodies 304
1, 2-Diacylglycerol
cytidylyltransferase activation 96
protein kinase C activation 143
regulation of sphingolipid metabolism 151
role in signal transduction 144
stimulation of phosphatidylcholine synthesis 146
Diacylglycerols, chromatographic separation of enantiomers 287
Docosahexaenoic acid, chick embryo 126, 127
Double bond creation, synthesis of fatty acids 232

Egg, lipids in 107
Eicosanoids, endothelial cells 48, 53
Eicosapentaenoic acid 48
Enantiomers
chemical and enzymatic kinetic separation 248
chromatographic separation 247, 277–297
Endothelial cells 45
arachidonic acid metabolism 46
calcium 54, 56
hormonal stimulation of lipid metabolism 54
lipid metabolism 46
platelet-activating factor metabolism 49
protein kinases 57
signal transduction 53
Environmental stress
lipid composition of *Candida albicans* 75
membrane lipids 167–227
Ergosterol, in *Candida albicans* 65, 75
Erythrocytes, *N*-acylated glycerophospholipids 19
Ethanolamine, phorbol ester effect on formation 158
Ethanolamine kinase 93
Eye, chick embryo 128

Fatty acids
Candida albicans 67, 77
chick embryo 125
cytidylyltransferase activation 94
stimulation of phosphatidylcholine biosynthesis 94
synthesis of membranes, environmental effects 210
yolk lipid 116, 120, 124
Fatty acid metabolites, synthesis
double bond creation 232
establishment of chiral centres 247
retrosynthesis 256
Fibroblasts, *N*-acylglycerophospholipids in 21
Filipin 76
Fish, *N*-acylated glycerophospholipids in 18
Fish oil 48
Freezing tolerance, membrane adaptions 191, 205
Fungal lipid bodies 303

Garlic, effect on *Candida albicans* 80
Gaucher's disease 33
Glucocerebrosidase 33
Glycerophospholipids, *N*-acylated
biochemical effects 32, 34
chemical synthesis 4
degradation and analysis 11
extraction and separation 10
fish 18
mammals 19
microorganisms 14
pharmacological effects 36
physical properties 5
plants 17
structure and terminology 2
Glycolipids, *Candida albicans* 68
G-proteins
endothelial cells 56
phospholipase C activity 153
Granular cells, epidermis, *N*-acylated glycerophospholipids in 21
Guanosine triphosphatase activating protein 145

Halophilic bacteria 208
Heart
N-acylated glycerophospholipids in 22, 25
membrane stabilizing effect of *N*-acylethanolamines 34
phospholipase A and D 30
pressure and function of 199
transacylase 26
Hibernation, membrane lipids 192
High pressure neurological syndrome 199
Homeophasic adaption 178, 179

Homeoviscous adaption
functional consequences 179
membrane fluidity 176
Hydrostatic pressure, membrane adaptions 193
β-Hydroxybutyrate polymeric ester, in bacteria 304
Hydroperoxy-eicosatetraenoic acids 231
Hydroxyeicosatetraenoic acids 231
chiral pool 254
phorbol ester effects 154
separation of enantiomers 247
synthesis 237
Hydroxy fatty acids, chromatic separation of enantiomers 284

Inflammation, *N*-palmitoylethanolamine effects 37
Ions, lipid dynamics and membrane structure 206
Ischaemia, *N*-acylated glycerophospholipids in brain 24

Ketoconazole 66

Lactones, chromatographic separation of enantiomers 295
Lanosterol, *Candida albicans* 66
N-Lauroylethanolamine 36
Leukotriene A4
chiral pool 254
synthesis 237, 240
Leukotriene B4
chiral pool 254
separation of enantiomers 248
synthesis 232, 235
Leukotrienes, metabolism by endothelial cells 48
Linoleic acid, yolk 117
Lipid bodies
storage 300, 304, 311, 315
transport 304, 309, 320
Lipid-body proteins 315
Lipid storage 299
animals 304, 314, 319
fungi 303, 319
plants 300, 311, 315
yeasts 313
Lipocortin, phorbol ester effects 155
Lipoproteins 304, 309, 320
hen plasma 111
yolk 116
α- and β-Lipovitellins 116, 118
Lipoxin A 155
Liver, chick embryo 126
Lung, chick embryo 129
Lysophosphatidylcholine, acylation 102
Lysophospholipid acyltransferase, environmental effects 217

Malvalic acid 133
Mammals, *N*-acylated glycerophospholipids in 19
Mass spectrometry, urethane derivatives 282
Membrane fluidity 175
homeoviscous adaption 176, 179
pressure effects 197
Membranes
N-acylethanolamine interactions 34, 35
adaption to changes in water activity 202
adaption to environmental salinity and pH 205
adaption to hydrostatic pressure 193
adaption to temperature 170
adaptive adjustments in lipid metabolism 209–218
Candida albicans, role of lipids 81
Microorganisms, *N*-acylated glycerophospholipids in 14
Molecular geometry 181
Monoacylglycerols, chromatographic separation of enantiomers 284
9- and 13-Monohydroxyoctadienoic acids 52
Muscle, chick embryo 128
Myocardial infarction, *N*-acylated glycerophospholipids in 22

Oil bodies
breakdown during germination 311
composition and structure 300
formation in developing seeds 304
proteins 302, 312, 315
Oleic acid
chick embryo 125
yolk 116
Oleogenic yeasts 307
lipid body mobilisation 313
Oleosins 305, 306, 312, 315
N-Oleoylethanolamine
membrane effects 35
pharmacological effects 38

Pallasium coupling reaction 242
Palmitic acid, yolk 117
Phase transition
homeophasic adaption 178
membrane lipids 170
molecular geometry 181
pressure effects 194
radius of curvature 182
Phorbol esters
cytidylyltransferase activation 95
effect on phospholipid metabolism 141–166
Phosphatidic acid, role in signal transduction 144
Phosphatidylcholine
biosynthesis 88
choline kinase 89
choline phosphotransferase 100
choline supply 88
cytidylyltransferase 93
hydrolysis by phospholipases D and C 155
metabolic compartmentation 101
phase states and temperature 171
phorbol ester effects 146
synthesis via CDP-choline pathway 88, 145
synthesis via methylation pathway 148
Phosphatidylethanolamine
hydrolysis by phospholipase D 157
phorbol ester effects on synthesis 149
phosphatidylcholine synthesis from 148
Phosphatidylinositol, in endothelial cells 47
Phosophatidylinositide-specific phospholipase C 152
Phosphatidylserine, phorbol ester effect on synthesis 150
Phospholipase A2
N-acylethanolamine phospholipid catabolism 30
endothelial cells 47, 56
environmental effects 216
phorbol ester effects 154

Phospholipase C
endothelial cells 56
phorbol ester effects 152
Phospholipase D
brain, *N*-acylethanolamine phospholipid catabolism 31
cell growth 159
endothelial cells 60
heart, *N*-acylethanolamine phospholipid catabolism 30
phosphatidylcholine hydrolysis 156
phosphatidylethanolamine hydrolysis 157
plants 17
Phospholipidosis, *N*-acyl glycerophospholipids in 24
Phospholipids
Candida albicans 68, 69, 74
chick embryo 126, 129
headgroup metabolism, environmental factors 214
headgroup restructuring and temperature 188
ion effects 206
membranes, environmental factors 213
membranes, temperature and phase state 170, 178, 181
molecular species remodeling and temperature 186, 216
phorbol ester effect on biosynthesis 145
phorbol ester effect on hydrolysis 152
plant oil bodies 302
pressure effect on phase transition 194
yolk 116
Phosphotransferase, temperature effects 215
Plant oil bodies
breakdown during germination 313
composition and structure 300
formation 304
proteins 302, 312, 315
Plants, *N*-acylated glycerophospholipids 14
Plasmalogens, mediators of thermal adaption 189
Platelet activating factor
antagonism by *N*-acylethanolamine phospholipids 33
chromatographic separation of enantiomers 293
metabolism by endothelial cells 49, 53
role of calcium in production 54
Polyunsaturated fatty acids
membrane fluidity and pressure 201
metabolism in chick embryo 131
Pressure adaption of membrane function 200
Prostacyclin, endothelial cells 48
Prostaglandins, endothelial cells 48
Protein kinase C
activation by arachidonic acid 155
activation by phorbol esters 95, 96
phorbol ester receptor 143
regulators of lipid metabolism 57
sphingomyelin metabolism 151

Racemic resolution 247
Radius of curvature 182
ras oncogene, phorbol ester effects 142
Rheumatoid arthritis, *N*-palmitoylethanolamine activity 37

Salinity
membrane adaptions 205, 206, 209
phospholipid headgroup composition 214
Seeds, oil bodies 301, 311
Sharpless asymmetric epoxidation 248, 249
Signal transduction
endothelial cell lipid metabolism 53–58
roles of 1, 2-diacylglycerol and phosphatidic acid 144
Soybean, *N*-acylated glycerophospholipids in 17
Sphingolipids, *Candida albicans* 69
Sphingomyelin, phorbol ester effect on metabolism 150
Stearic acid, yolk 117
Sterculic acid 133
Sterols, *Candida albicans* 65
Steryl glycosides, *Candida albicans* 68
Storage lipid bodies
animals 308
composition and ultrastructure 300
formation 304
fungi 303
mobilisation 311
plant oil bodies 300, 304
proteins 315
yeasts 307
Sumichiral OA-4100 280, 283, 284, 293

Temperature
membrane adaption 170
phospholipid synthesis in membranes 213
Terbinafine 66
12-*O*-Tetradecanoylphorbol-13-acetate
cell growth and differentiation 142, 159
phospholipid biosynthesis 145
phospholipid hydrolysis 152
protein kinase C 143
structure 142
Tetraether lipids, archaebacteria 183
Thermogenesis, 'leaky' membranes 192
Transacylase, heart 26
Transport lipid bodies 304
biogenesis 309
mobilisation 314
proteins 320
Trehalose, stabilisation of membrane structure 204
Triacylglycerol
fungal lipid bodies 303, 308
hen plasma 110
mammalian lipid bodies 309
plant oil bodies 302, 306, 311
steric analysis 295
yolk 116
Triple bonds, semireduction 245
Tumorigenesis, 12-*O*-tetradecanoylphorbol-13-acetate 142

Urethanes, chromatographic resolution 281

Vascular physiology, lipid metabolism in endothelial cells 45
Very low density lipoproteins 309
Vitamin B_{12}, lipid malfunction in chick embryo 133

Water, membrane adaptions 202
Wheat flour, *N*-acylated glycerophospholipids in 17
White adipocytes, lipid storage 308
Wittig reaction, fatty acid synthesis 235, 239

Yeasts
choline kinase 93
choline phosphotransferase 101
cytidylyltransferase 99
lipid body mobilisation 313
lipids in 65–85, 307

Yolk lipid
composition 112
formation and accumulation 108
transfer to embryo 119